

IN THE CLAIMS:

Please cancel Claims 2, 16, 30, and 43

Please amend Claims 1, 3, 4, 8, 10, 15, 17, 18, 22, 26, 29, 31, 32, 36, 38, 42, 44, 45m 49, and 51 to read as follows. Pursuant to the USPTO Notice on a Revised Amendment Format, all of the claims now pending in the application are as set forth below.

1. (Currently amended) An ink jet printing apparatus capable of performing a preliminary ejecting operation that does not contribute to printing, said apparatus comprising:

a print head having a nozzle and having a driver for driving wherein an amount of ink ~~ejected~~ through said nozzle during said preliminary ejecting operation so that said amount of ink varies depending on the length of time during which printing is not executed, ~~and in that:~~

wherein said preliminary ejecting operation is performed ~~taking an opportunity in which so that~~ an amount of ink passing through said nozzle is decreased below a normal value, except when said print head is disposed at a predetermined position.

2. (Cancelled)

3. (Currently amended) The ink jet printing apparatus according to claim 1 wherein said ~~opportunity~~ preliminary ejecting operation corresponds to a first ejection or first and second ejections following a last ejection.

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4. (Currently amended) The ink jet printing apparatus according to claim 1 wherein said ~~opportunity~~ preliminary ejecting operation corresponds to an ejection between the time when said ~~amount~~ a flow of ink passing through said nozzle starts to decrease below said normal value and the time when said ~~amount~~ flow of ink recovers to said normal value.

5. (Original) The ink jet printing apparatus according to claim 1 wherein said preliminary ejecting operation is performed on a print medium.

6. (Original) The ink jet printing apparatus according to claim 5 wherein said preliminary ejecting operation is performed on said print medium only if dots formed on said print medium may be unnoticeable compared to a printed image, and wherein said preliminary ejecting operation is performed on an object other than said print medium if dots may be noticeable.

7. (Original) The ink jet printing apparatus according to claim 5 wherein said preliminary ejecting operation is performed on an object other than said print medium if said amount of ink decreases below said normal value before said print medium reaches a printed position relative to said print head.

8. (Currently amended) The ink jet printing apparatus according to claim 1 wherein said preliminary ejecting operation is performed when a predetermined

time has elapsed after a last ejection, said predetermined time including the time during which said ~~amount~~ flow of ink passing through said nozzle is decreased significantly.

9. (Original) The ink jet printing apparatus according to claim 8 wherein said predetermined time is determined depending on a temperature condition and a humidity condition of said printing apparatus.

10. (Currently amended) The ink jet printing apparatus according to claim 8 wherein said print head has a plurality of nozzles, and wherein said predetermined time is determined for each of said nozzles.

11. (Original) The ink jet printing apparatus according to claim 10 wherein said predetermined time for each of said nozzles is corrected using dithering, error diffusions, or random numbers so that a dot pattern formed during said preliminary ejecting operation for said plurality of nozzles is unnoticeable compared to a printed image.

12. (Original) The ink jet printing apparatus according to claim 8 further comprising:

a table used to determined said predetermined time and ejecting numbers for said preliminary ejecting operation, and

a control device for controlling said predetermined ejecting operation, said control device using said table to perform said predetermined ejecting operation.

13. (Original) The ink jet printing apparatus according to claim 1 wherein said print head includes an electrothermal converting element, said print head ejecting ink using thermal energy generated by said electrothermal converting element.

14. (Original) The ink jet printing apparatus according to claim 1 wherein said print head includes a piezoelectric element, said print head ejecting ink using mechanical energy generated by said piezoelectric element.

15. (Currently amended) An ink jet printing apparatus capable of executing a printing process using ink containing a pigment as a color material and performing a preliminary ejecting operation that does not contribute to printing, said apparatus comprising:

a print head having a nozzle and having a driver for driving an amount of ink through said nozzle during said preliminary ejecting operation, wherein an optical density obtained from a pigment concentration of ink ejected through said nozzle varies depending on the time during which printing is not executed, and in that:

wherein said preliminary ejecting operation is performed ~~taking an opportunity in which~~ so that an optical density obtained from a concentration of ink passing through said nozzle is decreased below a normal value, except when said print head is disposed at a predetermined position.

16. (Cancelled)

17. (Currently amended) The ink jet printing apparatus according to claim 15 wherein said ~~opportunity~~ preliminary ejecting operation corresponds to a first ejection or first and second ejections following a last ejection.

18. (Currently amended) The ink jet printing apparatus according to claim 15 wherein said ~~opportunity~~ preliminary ejecting operation corresponds to an ejection between the time when said optical density obtained from said pigment concentration of ink passing through said nozzle starts to decrease below said normal value and the time when said optical density of ink recovers to said normal value.

19. (Original) The ink jet printing apparatus according to claim 15 wherein said preliminary ejecting operation is performed on a print medium.

20. (Original) The ink jet printing apparatus according to claim 19 wherein said preliminary ejecting operation is performed on said print medium only if dots formed on said print medium may be unnoticeable compared to a printed image, and wherein said preliminary ejecting operation is performed on an object other than said print medium if dots may be noticeable.

21. (Original) The ink jet printing apparatus according to claim 19 wherein said preliminary ejecting operation is performed on an object other than said print medium if said amount of ink decreases below said normal value before said print medium reaches a printed position relative to said print head.

22. (Currently amended) The ink jet printing apparatus according to claim 15 wherein said preliminary ejecting operation is performed when a predetermined time has elapsed after a last ejection, said predetermined time including the time during which said optical density obtained from said concentration of ink passing through said nozzle is decreased significantly.

23. (Original) The ink jet printing apparatus according to claim 22 wherein said predetermined time is determined depending on a temperature condition and a humidity condition of said printing apparatus.

24. (Original) The ink jet printing apparatus according to claim 22 wherein said print head has a plurality of nozzles, and wherein said predetermined time is determined for each of said nozzles.

25. (Currently amended) The ink jet printing apparatus according to claim 24 wherein said predetermined time for each of said nozzles is corrected using dithering, error diffusions, or random numbers so that a dot pattern formed during said preliminary ejecting operation for said plurality of nozzles is unnoticeable compared to a printed image.

26. (Currently amended) The ink jet printing apparatus according to claim 22 further comprising:

a table used to determined said predetermined time and ejecting numbers for said preliminary ejecting operation, and

a control device for controlling said predetermined ejecting operation, said control device using said table to perform said predetermined ejecting operation.

27. (Original) The ink jet printing apparatus according to claim 15 wherein said print head includes an electrothermal converting element, said print head ejecting ink using thermal energy generated by said electrothermal converting element.

28. (Original) The ink jet printing apparatus according to claim 15 wherein said print head includes a piezoelectric element, said print head ejecting ink using mechanical energy generated by said piezoelectric element.

29. (Currently amended) A preliminary ejecting method for an ink jet printing apparatus comprising a print head having a nozzle, said apparatus being capable of performing a preliminary ejecting operation that does not contribute to printing, said method comprising a the steps of:

(a) ~~executing said preliminary ejecting operation taking an opportunity in which~~ while controlling an amount of ink passing through said nozzle to a value which is decreased below a normal value, if ~~said amount of ink varies depending on~~ time determining a time period during which no printing process is executed, and varying

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said amount of ink passing through said nozzle depending on the duration of said time

period, except when said print head is disposed at a predetermined position.

30. (Cancelled)

31. (Currently amended) The preliminary ejecting method according to

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claim 29 wherein said ~~opportunity~~ preliminary ejecting operation corresponds to a first
ejection or first and second ejections following a last ejection.

32. (Currently amended) The preliminary ejecting method according to

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claim 29 wherein said ~~opportunity~~ preliminary ejecting operation corresponds to an
ejection between the time when ~~said amount~~ a flow of ink passing through said nozzle
starts to decrease below said normal value and the time when ~~said amount~~ flow of ink
recovers to said normal value.

33. (Original) The preliminary ejecting method according to claim 29

wherein said preliminary ejecting operation is performed on a print medium.

34. (Original) The preliminary ejecting method according to claim 33

wherein said preliminary ejecting operation is performed on said print medium only if dots
formed on said print medium may be unnoticeable compared to a printed image, and
wherein said preliminary ejecting operation is performed on an object other than said print
medium if dots may be noticeable.

35. (Original) The preliminary ejecting method according to claim 33 wherein said preliminary ejecting operation is performed on an object other than said print medium if said amount of ink decreases below said normal value before said print medium reaches a printed position relative to said print head.

36. (Currently amended) The preliminary ejecting method according to claim 29 wherein said preliminary ejecting operation is performed when a predetermined time has elapsed after a last ejection, said predetermined time including the time during which ~~said amount~~ the flow of ink passing through said nozzle is decreased significantly.

37. (Original) The preliminary ejecting method according to claim 36 wherein said predetermined time is determined depending on a temperature condition and a humidity condition of said printing apparatus.

38. (Currently amended) The preliminary ejecting method according to claim 36 wherein said print head has a plurality of nozzles, and wherein said predetermined time is determined for each of said nozzles.

39. (Original) The preliminary ejecting method according to claim 38 wherein said predetermined time for each of said nozzles is corrected using dithering, error diffusions, or random numbers so that a dot pattern formed during said preliminary ejecting operation for said plurality of nozzles is unnoticeable compared to a printed image.

40. (Original) The preliminary ejecting method according to claim 29 wherein said print head includes an electrothermal converting element, said print head ejecting ink using thermal energy generated by said electrothermal converting element.

41. (Original) The preliminary ejecting method according to claim 29 wherein said print head includes a piezoelectric element, said print head ejecting ink using mechanical energy generated by said piezoelectric element.

42. (Currently amended) A preliminary ejecting method for an ink jet printing apparatus comprising a print head having a nozzle, said apparatus being capable of executing a printing process using ink containing a pigment as a color material, and performing a preliminary ejecting operation that does not contribute to printing, said method comprising a the steps of:

(a) ~~executing said preliminary ejecting operation taking an opportunity in which~~ while controlling an optical density obtained from a concentration of ink passing through said nozzle to a value which is decreased below a normal value, ~~if said optical density varies depending on time~~ determining a time period during which no printing process is executed, and varying the optical density depending on the duration of said time period, except when said print head is disposed at a predetermined position.

43. (Cancelled)

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44. (Currently amended) The preliminary ejecting method according to claim 42 wherein said ~~opportunity~~ preliminary ejecting operation corresponds to a first ejection or first and second ejections following a last ejection.

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45. (Currently amended) The preliminary ejecting method according to claim 42 wherein said ~~opportunity~~ preliminary ejecting operation corresponds to an ejection between the time when said optical density obtained from said pigment concentration of ink passing through said nozzle starts to decrease below said normal value and the time when said optical density recovers to said normal value.

46. (Original) The preliminary ejecting method according to claim 42 wherein said preliminary ejecting operation is performed on a print medium.

47. (Original) The preliminary ejecting method according to claim 46 wherein said preliminary ejecting operation is performed on said print medium only if dots formed on said print medium may be unnoticeable compared to a printed image, and wherein said preliminary ejecting operation is performed on an object other than said print medium if dots may be noticeable.

48. (Original) The preliminary ejecting method according to claim 46 wherein said preliminary ejecting operation is performed on an object other than said print medium if said amount of ink decreases below said normal value before said print medium reaches a printed position relative to said print head.

49. (Currently amended) The preliminary ejecting method according to claim 42 wherein said preliminary ejecting operation is performed when a predetermined time has elapsed after a last ejection, said predetermined time including the time during which said optical density obtained from said concentration of ink passing through said nozzle is decreased significantly.

50. (Original) The preliminary ejecting method according to claim 49 wherein said predetermined time is determined depending on a temperature condition and a humidity condition of said printing apparatus.

51. (Currently amended) The preliminary ejecting method according to claim 49 wherein said print head has a plurality of nozzles, and wherein said predetermined time is determined for each of said nozzles.

52. (Original) The preliminary ejecting method according to claim 51 wherein said predetermined time for each of said nozzles is corrected using dithering, error diffusions, or random numbers so that a dot pattern formed during said preliminary ejecting operation for said plurality of nozzles is unnoticeable compared to a printed image.

53. (Original) The preliminary ejecting method according to claim 42 wherein said print head includes an electrothermal converting element, said print head ejecting ink using thermal energy generated by said electrothermal converting element.

54. (Original) The preliminary ejecting method according to claim 42

wherein said print head includes a piezoelectric element, said print head ejecting ink using

mechanical energy generated by said piezoelectric element.
